

February 16, 2011

Mr. Jeff Zaring
State Board of Education Administrator
Indiana Department of Education
Room 225 State House
Indianapolis, IN 46204

Dear Mr. Zaring,

McGraw-Hill Education is pleased to have the opportunity to provide comments on the Textbook Advisory Committee reviews, as well as detailed justifications as to why the Indiana State Board of Education should adopt Macmillan/McGraw-Hill *Math Connects* grades 3-5, *Glencoe Algebra 1* and *Glencoe Geometry*.

We fully support Indiana's goal of providing engaging, effective programs that capture the vision of the Common Core State Standards, including the Standards for Mathematical Practice. Our authors, editors, and educational consultants have carefully studied these standards, and we have attempted to address them in our Indiana submissions.

These high-quality programs deliver classroom-tested best practices that ensure students will understand mathematics and demonstrate appropriate mastery. Our curriculum is reflective of cross-disciplinary skills such as critical thinking and problem solving. The responses for each course offer examples of how each program addresses most significant reviewer concerns, as well as the feedback from the Charles A. Dana Center.

We respectfully request that the Indiana State Board of Education reconsider the non-recommended status of Macmillan/McGraw-Hill *Math Connects* grades 3-5, *Glencoe Algebra 1* and *Glencoe Geometry*. Please feel free to contact me if you have any questions or concerns.

Sincerely,



Lisa Carmona
Vice President, PreK-12 Mathematics Editorial
McGraw-Hill School Education Group

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ALGEBRA 1

Glencoe



Meets the
COMMON CORE
STATE STANDARDS

Publisher Response to Textbook Review Indiana's Education Roundtable, 2010

PUBLISHER	School Education Group a division of The McGraw-Hill Companies Inc.		
CONTACT	Jeff Whorley	PHONE	404-441-6444
		E-MAIL	Jeff_Whorley@mcgraw-hill.com
TITLE	<i>Glencoe Algebra 1</i>		
AUTHOR(S)	Carter, Cuevas, Day, and Malloy		
EDITION	1 st		
COPYRIGHT	2012		
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IDENTIFICATION AND JUSTIFICATION

STANDARD FOR MATHEMATICAL PRACTICE	1. Make sense of problems and persevere in solving them.
RATING	-
OUR RESPONSE	<p>In <i>Glencoe Algebra 1</i>, Lesson 0-1, students study and apply the four-step problem solving plan. With this plan, students read and analyze the meaning of a problem, plan a method for solution, carry out their plan, and then check the solution. Checking a solution includes asking yourself if the solution makes sense and if it fits the information in the problem.</p> <p>Students are instructed to apply this strategy to each problem throughout the course. In each chapter, this method is demonstrated for students in the context of a real-world problem. Some examples: Lesson 1-4, page 26, Example 1; Lesson 3-6, page 199, Example 2; Lesson 6-3, pages 352-353, Example 4.</p> <p>Teachers serve a critical role in modeling sense making and perseverance in solving problems. Support for teachers in this role is offered in the Teacher Edition of <i>Glencoe Algebra 1</i>. Some examples: Lesson 3-2, page 163, Tips for New Teachers; Lesson 4-2, page 229, Tips for New Teachers; Lesson 8-8, page 518, Tips for New Teachers.</p> <p>Open-ended questions are just one of the many opportunities for students to make sense of problems and persevere in solving them. One or more open-ended equation is provided in every lesson of the text.</p>
STANDARD FOR MATHEMATICAL PRACTICE	2. Reason abstractly and quantitatively.

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RATING	-
OUR RESPONSE	<p>To reason abstractly and quantitatively, students must decontextualize the quantities in a situation, solve the problem, and then contextualize the solution to answer a question. These skills are modeled in the Examples in each lesson. The Practice and Problem Solving section of the exercises is carefully constructed to support students as they build these skills. The early problems offer more steps to guide students as they apply the concepts of the lesson to the problem. As the exercises progress, as denoted with B and C flags in the Teacher edition, students are given less support and asked to do more of the reasoning to solve problems.</p> <p>Support for teachers in modeling abstract and quantitative thinking is offered in the Teacher Edition of <i>Glencoe Algebra 1</i>. Some examples: Lesson 2-1, page 77, Tips for New Teachers; Lesson 4-1, page 218, Tips for New Teachers; Explore 8-1, pages 463-464, Tips for New Teachers, From Concrete to Abstract.</p>
STANDARD FOR MATHEMATICAL PRACTICE	3. Construct viable arguments and critique the reasoning of others.
RATING	-
OUR RESPONSE	<p>Students in an Algebra 1 course construct arguments and use stated assumptions, definitions, and previously established results as they solve equations. The assumptions and definitions include properties of numbers such as the Distributive Property and the properties of exponents.</p> <p>In <i>Glencoe Algebra 1</i>, students make conjectures in Labs and HOT problems. Each Lab is structured for cooperative work where they can communicate with other students about the mathematics they are learning. The HOT problems in each lesson include problems that ask for explanations, convincing arguments, and critiques of arguments. Some examples: Lesson 7-2, page 404, exercise 64; Lesson 7-7, page 442, exercise 39.</p> <p>The Chapter Projects associated with each chapter offer extended opportunities for cooperative work and constructing arguments. Some examples: Chapter 1, page 2; Chapter 3, page 150.</p> <p>Suggested methods for using cooperative work are included in the Teacher Edition as well. Some examples: Lesson 5-1, page 287, Differentiated Instruction; Lesson 6-1, page 340, Differentiated Instruction, Lesson 8-7, page 511, Differentiated Instruction.</p>
STANDARD FOR MATHEMATICAL PRACTICE	4. Model with mathematics.
RATING	-

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OUR RESPONSE	In addition to the many real-world application problems in <i>Glencoe Algebra 1</i> , teachers can choose to have students apply mathematical models to the Chapter Projects associated with each chapter. Some examples: Chapter 2, page 72; Chapter 7, page 388.
STANDARD FOR MATHEMATICAL PRACTICE	5. Use appropriate tools strategically.
RATING	-
OUR RESPONSE	<p>Students using <i>Glencoe Algebra 1</i> use tools such as pencil and paper, concrete models, rulers, protractors, calculators, spreadsheets, and computer algebra systems. In addition to the Labs in the Student Edition, activities using these tools are included in the Chapter Resource Masters for each chapter and in the <i>Teaching Algebra with Manipulatives</i> resource.</p> <p>Suggested methods for using tools strategically are included in the Teacher Edition as well. Some examples: Lesson 6-3, page 352, Differentiated Instruction; Lesson 8-6, page 504, Differentiated Instruction; Lesson 9-1, page 547, Differentiated Instruction.</p>
STANDARD FOR MATHEMATICAL PRACTICE	6. Attend to precision.
RATING	-
OUR RESPONSE	The examples in <i>Glencoe Algebra 1</i> model mathematical precision. Teachers must also model precision for their students and require precision in homework assignments and assessments. Suggested methods for guiding students to precision, including alerts to common student errors, are included in the Teacher Edition. Some examples: Lesson 2-1, page 78, Watch Out!; Lesson 3-3, page 176, Watch Out!; Lesson 6-3, page 352, Watch Out!.
STANDARD FOR MATHEMATICAL PRACTICE	7. Look for and make use of structure.
RATING	-
OUR RESPONSE	In <i>Glencoe Algebra 1</i> students are introduced to the mathematical structure that is the basis for properties and algorithms before the rule is presented. Sometimes that presentation includes a real-world application of the concept. Some examples: Lesson 1-4, page 25, text before Key Concept box; Lesson 3-3, page 176, text before Key Concept box; Lesson 7-1, pages 392-393, text before each Key Concept box; Lesson 7-3, page 406, text before Key Concept box.

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STANDARD FOR MATHEMATICAL PRACTICE	8. Look for and express regularity in repeated reasoning.
RATING	-
OUR RESPONSE	In <i>Glencoe Algebra 1</i> students often investigate concepts using patterns before formal introduction in Multiple Representations problems or Labs. Some examples: Explore 2-2, pages 81-82; Lesson 5-1, page 289, exercise 45; Lesson 7-1, page 396, exercise 63. Opportunities for teachers to present concepts through explorations are described in <i>Teaching Algebra with Manipulatives</i> .
COMMON CORE STATE STANDARD	N-RN.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.
RATING	2
OUR RESPONSE	The Common Core State Standards call for students to begin their study of exponents as early as grade 5, continuing with study of the properties of integer exponents and operations with radicals in middle school. In <i>Glencoe Algebra 1</i> , students refresh their knowledge of radicals and exponents in Lessons 0-2 and 1-1. Students evaluate expressions involving exponents throughout Chapter 1. The study of exponents is then extended in Chapter 7. In Lessons 7-1 and 7-2, students study the properties of exponents in depth. Lesson 7-3 entitled <i>Rational Exponents</i> begins by expanding the properties of integer exponents to define rational exponents. Students write expressions in exponential and radical form, evaluate expressions, and solve equations. <i>Please note: In the Common Core Edition of Algebra 1 Lesson 7-3 is Rational Exponents and Lesson 7-4 is Scientific Notation. Lesson 7-3 is Scientific Notation in the previous edition of Algebra 1.</i>
COMMON CORE STATE STANDARD	N-RN.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.
RATING	1, 2
OUR RESPONSE	The standard asks for students to explain the reasoning behind the closure of the sets of rational and irrational numbers with respect to addition and multiplication. Extend 10-2 introduces the concept of closure of a set and guides students to test the concept for products and sums of rational and irrational numbers. Each combination of number set and operation listed in the standard is addressed in the activities or exercises. Because this standard addresses a concept which students should understand instead of a skill to be repeated and applied, extensive practice should not be required.
COMMON CORE STATE STANDARD	N-Q.2 Define appropriate quantities for the purpose of descriptive modeling.
RATING	1, 2

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OUR RESPONSE	<p>The concept of descriptive modeling and the term metric are explained in Extend 2-6. However, students apply the concepts of descriptive modeling and metrics in application situations throughout the text. Some examples: Lesson 1-5, p. 37, exercise 47; Lesson 2-5, p. 105, exercise 10; Lesson 2-7, p. 122, exercise 40; Lesson 3-3, p. 179, exercise 47; Lesson 4-5, p. 251, exercise 10.</p> <p>Chapters 1 and 2 provide students and teachers the opportunity to work with quantities and the relationships between them. Their study of the properties of real numbers provides the grounding for extended work with expressions, equations, and functions.</p>
COMMON CORE STATE STANDARD	N-Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
RATING	1, 2
OUR RESPONSE	The Common Core State Standards call for students to begin applying measurements, estimating, and rounding as early as grades 2 and 3, and continuing in middle school. In <i>Glencoe Algebra 1</i> , the concept of accuracy is revisited in Extend 1-3. Students then apply their skills as they explore other concepts throughout the text.
COMMON CORE STATE STANDARD	A-SSE.3c Use the properties of exponents to transform expressions for exponential functions.
RATING	1, 2
OUR RESPONSE	<p>Standards A.SSE.3a and A.SSE.3b address working with expressions in quadratic equations. Those standards are fully addressed in Lessons 9-3, 9-4, and Extend 9-4.</p> <p>Standard A.SSE.3c addresses working with expressions in exponential equations. In addition to Extend 7-6, students use the properties of exponents to solve exponential equations in Lesson 7-3.</p>